Live (Rose Bengal stained) foraminiferal faunas from the northern Arabian Sea: faunal succession within and below the OMZ

Titre	Live (Rose Bengal stained) foraminiferal faunas from the northern Arabian Sea: faunal succession within and below the OMZ
Type de publication	Article de revue
Auteur	Caulle, Clémence [1], Koho, Karoliina A. [2], Mojtahid, Meryem [3], Reichart, Gert-Jan [4], Jorissen, Frans [5]
Editeur	European Geosciences Union
Type	Article scientifique dans une revue à comité de lecture
Année	2014
Langue	Anglais
Date	2014/02/26
Numéro	4
Pagination	1155 - 1175
Volume	11
Titre de la revue	Biogeosciences
ISSN	1726-4189

Résumé en anglais	Live (Rose Bengal stained) benthic foraminifera from the Murray Ridge, within and below the northern Arabian Sea oxygen minimum zone (OMZ), were studied in order to determine the relationship between faunal composition, bottom water oxygenation (BWO), pore water chemistry and organic matter (organic carbon and phytopigment) distribution. A series of multicores were recovered from a ten-station oxygen (BWO: 2–78 µM) and bathymetric (885–3010 m depth) transect during the winter monsoon in January 2009. Foraminifera were investigated from three different size fractions (63–125 µm, 125–150 µm and >150 µm). The larger foraminifera (>125 µm) were strongly dominated by agglutinated species (e.g. Reophax spp.). In contrast, in the 63–125 µm fraction, calcareous taxa were more abundant, especially in the core of the OMZ. On the basis of a principal components analysis, three foraminiferal groups were identified and correlated to the environmental parameters by canonical correspondence analysis. The faunas from the shallowest stations, in the core of the OMZ (BWO: 2 µM), were composed of "low oxygen" species, typical of the Arabian Sea OMZ (e.g. Rotaliatinopsis semiinvoluta, Praeglobobulimina sp., Bulimina exilis, Uvigerina peregrina type parva). These taxa are adapted to the very low BWO conditions and to high phytodetritus supplies. The transitional group, typical for the lower part of the OMZ (BWO: 5–16 µM), is composed of species that are tolerant as well to low-oxygen concentrations, but may be less critical with respect to organic supplies (e.g. Globocassidulina subglobosa, Ehrenbergina trigona). Below the OMZ (BWO: 26–78 µM), where food availability is more limited and becomes increasingly restricted to surficial sediments, cosmopolitan calcareous taxa were present, such as Bulimina aculeata, Melonis barleeanus, Uvigerina peregrina and Epistominella exigua. Miliolids were uniquely observed in this last zone, reflecting the higher BWO and/or lower organic input. At these deeper sites, the faunas exhibit a clear succession of superficial, intermediate and deep infaunal microhabitats, which can be linked to the deeper oxygen and nitrate penetration into the sediment.
URL de la notice	http://okina.univ-angers.fr/publications/ua3828 [6]
DOI	10.5194/bg-11-1155-2014 [7]
Lien vers le document	http://dx.doi.org/10.5194/bg-11-1155-2014 [7]

Liens

[1] http://okina.univ-angers.fr/ccaulle/publications
[2] http://okina.univ-angers.fr/publications?f[author]=6426
[3] http://okina.univ-angers.fr/m.mojtahid/publications
[4] http://okina.univ-angers.fr/publications?f[author]=20270
[5] http://okina.univ-angers.fr/f.jorissen/publications
[6] http://okina.univ-angers.fr/publications/ua3828
[7] http://dx.doi.org/10.5194/bg-11-1155-2014